

REMARKS

Claims 1, 4-8, 10, 13-20, 22-28, 36, 38 and 39 were pending in the instant application, all being rejected. New Claims 43 and 44 are added herein, therefore Claims 1, 4-8, 10, 13-20, 22-28, 36, 38, 39, 43 and 44 are currently pending. Reconsideration of the application is requested.

The undersigned wishes to thank Examiner Mai for the time spent in the telephonic interview of June 18, 2001. While no agreement was reached on any of the issues the undersigned raised, what is believed to be valuable insight into the basis on which the rejections herein have been made.

Specifically, the undersigned raised the issue of the objection to the amendment of August 29, 2000 under 35 U.S.C. §132. The Examiner stated that such an objection was proper as the amendment recited a narrower range of temperatures than what was disclosed in the specification. The undersigned pointed out that such a objection under §132 had been previously raised to a different narrower range of temperatures in the Examiner's Action mailed June 2, 2000, and that the August 29 amendment narrowed the range further and that Applicant's response included a listing of court decisions that clearly set forth that such an amendment was proper. The undersigned recited for the Examiner the citation to *In re Johnson* (CCPA 1977) as well as the holding of that court that "claiming less than the full scope of the disclosure ... is a perfectly legitimate procedure since it is for an inventor to decide what bounds of protection will be sought" presented in the Applicant's August 29

paper. In response, the Examiner indicated that he had received training at the Office that suggested that a §132 objection to a narrowed range in a claim was proper. The undersigned asked the Examiner to provide a copy of such training materials, to which the Examiner was silent.

During the discussion of the §132 objection the undersigned directed the Examiner to the text of his Action mailed November 11, 2000. Therein, the undersigned pointed out to the Examiner that no objection under §132 was raised and that the exact language of Applicant's now objected to amendment was recited by the Examiner in formulating a rejection under 35 U.S.C. §103 to U.S. Patent No. 5,849,644. The undersigned then pointed out to the Examiner that in the November 11 action he stated that the finality of the rejection based on the '644 patent was based on Applicant's now objected-to amendment and that Applicant's Response of January 18, 2001 relied upon the Examiner's representation that the August 29 amendment was entered WITHOUT objection. The interview was concluded with no agreement on any issue being reached.

Objection to the Specification under 37 C.F.R. §132 and Rejection under 35 U.S.C. §112, first paragraph:

The amendment filed August 29, 2000 is objected to under 37 C.F.R. §132 for the introduction of new matter. In addition, Claims 38 and 39 stand rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the

inventor(s), at the time the application was filed, has possession of the claimed invention. Applicant traverses both the objection and the rejection.

The Examiner's new objection seems to be based again on Applicant's disclosure at lines 3-5 of page 5 of the application that the "[t]emperature of the substrate within the reaction chamber is preferably maintained at from about 400°C to about 700°C, and more preferably maintained at about 500°C." Specifically the Examiner alleges that the phrase "in excess of 500 °C but less than 630 °C" included in Claim 38, is not supported by the specification. Applicant disagrees.

It is well established law that "it is not necessary that claimed subject matter be described *ipsis verbis* [in the identical words] to satisfy the written description requirement of 35 U.S.C. §112" (*Haymes v. Takaya*, 6 USPQ 2d. 1448 (Bd. Pat. App. & Int., 1988) citing *Fields v. Conover*, 443 F.2d 1386, 170 USPQ 276 (CCPA 1971)). In *In re Johnson*, 558 F.2d 1008, 194 USPQ 187 (CCPA 1977), the CCPA, reversing the Board of Patent Appeals and Interferences, noted that *Johnson* was "simply claiming less than the full scope of the disclosure which is a perfectly legitimate procedure since it is for an inventor to decide what bounds of protection will be sought." (Id at 1019). In *Eiselstein v. Frank*, 52 F.3d 1035, 34 USPQ.2d 1467 (Fed Cir 1995), the court in evaluating claims filed in a CIP application to determine if such claims were supported by the disclosure of the grandparent to such CIP application stated "the grandparent application need not contain precisely the same words as are found in claims 8-18 [claims in the CIP]; rather, the application simply must indicate to a person

skilled in the art that the range ... was intended to be approximate, i.e. to mean 'about'." With respect to changing numerical range limitations, the analysis must take into account which ranges one skilled in the art would consider inherently supported by the discussion in the original disclosure. In the decision in *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976), referred to in the M.P.E.P. at §2163.05 (III), the court found that where the Applicant "the ranges described in the original specification included a range of "25%- 60%" and specific examples of '36%" and "50%' ... a limitation to 'between 35% and 60%' DID MEET the description requirement" (emphasis added).

In the instant application, Applicant has presented a broad temperature range and an exemplary approximate temperature within that range. Each include the word "about" to insure that one skilled in the art would know that the values recited are approximate and inclusive of values for each that are "in excess of" the specific temperatures recited. Applicant asserts that such language within the specification is in accordance with the holding of both *Eiselstein* and *Wertheim*. Therefore it must follow that Claims 38 and 39, including less than the full range recited in the specification, in accordance with *In re Johnson*, and using words in the claims that are not exactly the same words used in the specification, in accordance with *Haymes*, DO NOT constitute new matter and the objection to the specification and rejection of such claims under 35 U.S.C. §112, first paragraph, MUST be withdrawn.

500 + 630°C
650°C

Rejections under 35 U.S.C. §103:

Vassiliev

Claims 1, 4-7, 10, 16, 17 and 36 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Vassiliev (U.S. Patent No. 5,876,798). Applicant traverses.

Claim 1 recites, in pertinent part, “depositing an insulating material, at a rate of from about 1000 angstroms per minute (Å/min) to about 10000 Å/min, ... , wherein the depositing occurs with a plasma being present in the reaction chamber.” Each of Claims 4-7, 10, 16, 17 and 36 depend from Claim 1 and therefore inherit the recitation of this aspect of such independent claim.

In contrast, Vassiliev teaches a reduced pressure chemical vapor deposition process conducted in the ABSENCE OF PLASMA as clearly evidenced by the Claims 1-15 of Vassiliev, whereas the Examiner improperly characterizes such patent as teaching the use of a plasma deposition process. Applicant acknowledges that the phrase “plasma enhanced CVD” does appear in Vassiliev at column 6, line 12. However, if one of ordinary skill in the art were to read the entire paragraph that the referenced line appears in that person would know that such is in a negative context. Thus Vassiliev in describing Fig. 2 which depicts “oxide layer 24, deposited using plasma enhanced CVD” states that “voids 25 have been incorporated inside 24 making it unreliable for future use” (ibid., col. 6, lines 8-14, emphasis added).

The Examiner also states that "it is well known in the art that the deposition rate is readily determined by the input of the reactant gases." Such statement is made without reference to any supporting teaching and Applicant respectfully asserts that such statement is INCORRECT. For example, as pointed out by *Wolf et al.* on page 173 of "Silicon Processing for the VLSI Era", Vol. 1, 2nd Edition, "[a]ttempting to increase deposition rates by increasing the reactant partial pressures tends to initiate gas phase reactions." Since when a reactant is consumed by gas phase reactions, it is not available for deposition, at least in the one case referred to by *Wolf*, the deposition rate would not be readily determinable from an input rate. Furthermore, when a person is first introduced to the CVD arts one of the first teachings given that person is that there are many factors that influence deposition rate. Applicant respectfully asserts that it is for this purpose, that the many volumes of text that espouse theories that attempt explain the complex mechanisms of chemical vapor deposition have been prepared. Therefore, the Examiner's statement over-simplifies a very complex field. If the Examiner disagrees, he is invited to provide positive proof of the validity of his position, as is required upon Applicant's traversal and request, such as being herein made. The Examiner is respectfully directed to M.P.E.P. §2144.03 which states "[i]f the applicant traverses such an assertion [official notice by the examiner] the examiner should cite a reference in support of his or her position," citing to *In re Malcolm*, 129 F.2d 529, 54 USPQ 235 (CCPA 1942).

Applicant has demonstrated that Vassiliev DOES NOT teach depositing “with a plasma being present in the reaction chamber” as recited in Claim 1. Applicant has also demonstrated that it is NOT WELL KNOWN in the art that deposition rate is readily determined by the input of reaction gases. Therefore it is respectfully asserted that the Examiner MUST withdraw the rejection of such claim as well as the rejection of Claims 4-7, 10, 16, 17 and 36, which depend therefrom. Action to this effect is requested.

Vassiliev '798 in view of Homma.

Claim 8 stands rejected under U.S.C. 103(a) as being unpatentable over Vassiliev '798, as applied to claim 1 above, and further in view of Homma (U.S. Patent No. 5,288,518). Applicant traverses.

Claim 8 depends from Claim 1. Therefore, for at least the reasons stated above, the Examiner's allegation that Vassiliev “teaches all of the features of the claim with the exception of atomic percentage of fluorine in the insulating material” is INCORRECT. As Homma is not represented by the Examiner as providing any teaching other than an atomic percentage of fluorine that is within Applicant's claimed range, a combination of Homma with Vassiliev is also INCORRECT. Applicant respectfully asserts that the rejection MUST therefore be withdrawn. Action to this effect is requested.

Vassiliev '798 in view of Kirchhoff et al

Claims 13-15 and 22-28 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Vassiliev '798 as applied to Claim 1 above, and

further in view of Kirchhoff et al. (U.S. Patent No. 6,057,250, hereinafter "Kirchhoff"). Applicant traverses.

Claims 13-15 and 22-28 depend from Claim 1. Therefore, for at least the reasons stated above, the Examiner's allegation that Vassiliev "teaches all of the features of the claim with the exception of further includes boron and phosphorous in the reactant gases" is INCORRECT. As Kirchhoff is not represented by the Examiner as providing any teaching other than including boron and phosphorous, a combination of Kirchhoff with Vassiliev is also INCORRECT. Applicant respectfully asserts that the rejection MUST therefore be withdrawn. Action to this effect is requested.

Vassiliev

Claims 18-20, 38 and 39 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Vassiliev (U.S. Patent No. 5,876,798). Applicant traverses.

Claim 18 recites, in pertinent part, "causing a silicon oxide having Si-F bonds, to deposit onto the substrate within the reaction chamber at a rate of from about 1000 angstroms per minute (Å/min) to about 10000 Å/min." Each of Claims 19-20 and 38-39 depend from Claim 18 and therefore inherit the recitation of this aspect of such independent claim.

The Examiner again takes the position that "it is well known in the art that the deposition rate is readily determined by the input of the reactant gases." As Applicant has remarked above with regard to Claim 1, such statement is made without reference to any supporting teaching and such statement is INCORRECT. The entirety of Applicant's remarks with regard

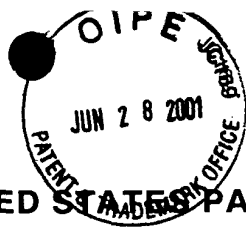
to deposition rate in response to the rejection of Claim 1 are included herein with respect to the rejection of Claims 18-20, 38 and 39. Therefore, for at least the same reason as put forth for Claim 1 above, the rejection of Claims 18-20, 38 and 39 MUST also be withdrawn. Action to this effect is requested.

In summary, Applicant having responded to each of the rejections and objections, respectfully asserts that Claims 1, 4-8, 10, 13-20, 22-28, 36, 38 and 39 are in condition for allowance. Action to this effect is earnestly sought. If, however the Examiner's next action is anything other than a Notice of Allowance, the Examiner is requested to call the undersigned to schedule a telephonic interview. The undersigned is available during normal business hours, Pacific Coast Time.

Respectfully submitted,

Dated: June 25, 2001

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No.09/146,839
Filing Date September 3, 1998
Inventor.....Anand Srinivasan et al.
AssigneeMicron Technology, Inc.
Group Art Unit 2814
ExaminerA. Mai
Attorney's Docket No. MI22-1017
Title: Methods of Forming Flourine Doped Insulating Materials

VERSION WITH MARKINGS TO SHOW CHANGES MADE
ACCOMPANYING RESPONSE TO MARCH 21, 2001 OFFICE ACTION

The claims have been amended as follows. Underlines indicate insertions and ~~strikeouts~~ indicate deletions.

Add new Claims 43 and 44.

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